

REMARKS

Entry of the foregoing, reexamination and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

At the outset, Applicants note with appreciation the indication by the Patent Office that the present application apparently sets forth allowable subject matter (Official Action at page 5).

By the above amendments, claims 1-17 have been amended in conformance with standard U.S. claims drafting practice by replacing the phrase "characterized in that" with "wherein." Claim 1 has been amended for clarification purposes by replacing the phrase "thus making it possible to heat" with "the introduction of the reaction gas mixture into the porous medium results in heating." Claim 1 has also been amended for clarification by deleting the phrase "rendering unnecessary an external heat supply when operating continuously," and new claim 18 is directed to the deleted subject matter.

In addition, claim 1 has been amended for readability purposes by replacing the phrase "of the type according to which partial oxidation of" with "comprising partially oxidizing." Claim 1 has further been amended for readability purposes by replacing the phrase "is carried out, and according to which the processing" with "wherein the process." Various other claim amendments have been made to claim 1 for readability purposes.

Claims 2, 4, 7, 10 and 15 have been amended for clarification by reciting the phrase "or a product thereof" after "the reaction gas mixture." Claim 2 has been amended for readability by deleting the reference numerals, and by replacing the phrase "in that" with "wherein." Claim 3 has been amended for readability by replacing the word "material" with "materials." Claims

4 and 10 have been amended for readability by replacing the phrase "in that the reactor is fed in alternate mode in the following way" with "wherein the reactor is alternately fed by the following introduction modes (i) and (ii)." Various other minor amendments have been made to claims 4 and 10 for readability purposes.

Claims 6, 9, 13, 14 and 17 have been amended for readability by replacing the phrase "which make possible total combustion" with "for achieving total combustion." Claims 7 and 15 have been amended for readability by replacing the word "exhibiting" with "comprising." New claim 19 is directed to an additional aspect of the present invention. Support for new claim 19 can be found in the instant specification at least at FIG. 1 taken in connection with page 16, lines 24-31.

In the Official Action, claims 1-17 stand rejected under 35 U.S.C. §112, second paragraph, for the reasons set forth at pages 3 and 4 of the Official Action. In response thereto, claim 1 has been amended to delete the objected-to phrases "of the type" and "thus making it possible to heat." With respect to the rejection of claims 9, 13, 14 and 17, such claims have been amended to replace the objected-to phrase "which make possible total combustion" with "for achieving total combustion."

In view of the foregoing, it is clear that the claims fully comply with the provisions set forth in the second paragraph of 35 U.S.C. §112. Accordingly, withdrawal of this rejection is respectfully requested.

~~Claims 1-4, 6, 10, 13 and 14 stand rejected under 35 U.S.C. §102(e) as being anticipated~~
by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent No.

6,488,838 (*Tonkovich et al*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

According to one aspect of the present invention as defined by claim 1, a process for the production of a mixture comprising hydrogen and CO is provided. The process comprises partially oxidizing a hydrocarbon by an oxygenated medium or a medium capable of releasing oxygen, wherein the process is carried out under autothermal conditions, the heat given off by said oxidation being recovered to maintain the endothermic reactions which take place between a nonoxidized fraction of said hydrocarbon and CO₂ and steam produced by said oxidation. The reaction gas mixture comprising the hydrocarbon and the oxygenated medium is introduced into a porous medium which has been preheated beforehand. The introduction of the reaction gas mixture into the porous medium results in heating the reaction gas mixture by heat exchange with the porous medium to a temperature sufficient to initiate a combustion reaction.

Tonkovich et al relates to a chemical reactor and method for gas phase reactant catalytic reactions (col. 1, lines 7 and 8). *Tonkovich et al* discloses a chemical reactor having at least one reactor microchannel defining a bulk flow path through which at least one reactant passes, and at least one product (col. 2, lines 35-37). *Tonkovich et al* also discloses that in operation, the at least one reactant enters the at least one reactor microchannel in the bulk flow path, flowing past and in contact with a porous material (col. 3, lines 45-47).

Tonkovich et al does not disclose or suggest each feature of one aspect of the present invention as defined by claim 1. For example, *Tonkovich et al* does not disclose or suggest that the introduction of a reaction gas mixture into a porous medium results in heating the reaction gas mixture by heat exchange with the porous medium to a temperature sufficient to initiate a

combustion reaction, as recited in claim 1. In this regard, the Official Action at page 3 states the following:

It is noted that applicant's claims do not require that heat be transferred from the porous medium to the reaction gas mixture, since the claims merely recite "making it possible" to heat the reaction gas mixture by heat exchange with the porous medium, as opposed to actually heating such reaction gas mixture by the porous medium.

As discussed above, claim 1 has been amended to clarify that the step of introducing the reaction gas mixture into the porous medium results in heating the reaction gas mixture by heat exchange with the porous medium to a temperature sufficient to initiate a combustion reaction. *Tonkovich et al* simply has no disclosure or suggestion of such feature.

In stark contrast with the present invention, *Tonkovich et al* discloses placing the microchannel thereof within a tube furnace to provide the required endothermic reaction heat (col. 4, lines 55 and 56). Clearly, one of ordinary skill in the art would not have been motivated to modify *Tonkovich et al* by heating the reaction gas mixture by heat exchange with the porous medium to a temperature sufficient to initiate a combustion reaction, because *Tonkovich et al* discloses using a tube furnace to provide the required endothermic reaction heat.

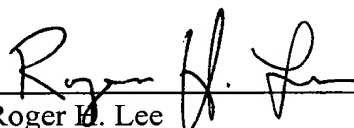
For at least the above reasons, it is apparent that *Tonkovich et al* neither anticipates nor renders obvious the present invention. Accordingly, withdrawal of the above rejection is respectfully requested.

The present application was originally filed with two sheets for formal drawings (FIGS. 1 and 2). The Patent Office has not to date provided any indication that such drawings have been reviewed. The Patent Office is respectfully requested to review the drawings and provide indication that such drawings are acceptable, or notify Applicants if any revisions are necessary.

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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